Dazatronyx THD Bill of Materials

Parts	Qty	Value	Markings / notes
		Resistors	
R18	1	22Ω	Metal film, 1/4W, ***RED, RED, BLK, GLD, BRN***
R28	1	120Ω	Metal film, 1/4W, ***RED, RED, BLK, BLK, BRN***
R49	1	150Ω	Metal film, 1/4W, ***RED, GRN, BLK, BLK, BRN***
R4, R11, R13	3	330Ω	Metal film, 1/4W, ***ORG, ORG, BLK, BLK, BRN***
R10, R14	2	1K	Metal film, 1/4W, ***BRN, BLK, BLK, BRN, BRN***
R2, R52, R54	3	3K3	Metal film, 1/4W, ***ORG, ORG, BLK, BRN, BRN***
R9	1	3K9	Metal film, 1/4W, ***ORG, WHT, BLK, BRN, BRN***
R3	1	5K1	Metal film, 1/4W, ***GRN, BRN, BLK, BRN, BRN***
R1, R5, R6, R7, R17, R23, R27, R30	8	10K	Metal film, 1/4W, ***BRN, BLK, BLK, RED, BRN***
R19, R22	2	22K	Metal film, 1/4W, ***RED, RED, BLK, RED, BRN***
R42	1	47K	Metal film, 1/4W, ***YLW, VIO, BLK, RED, BRN***
R24, R25, R32	3	68K	Metal film, 1/4W, ***BLU, GRY, BLK, RED, BRN***
R43	1	82K	Metal film, 1/4W, ***GRY, BRN, BLK, RED, BRN***
R21, R26, R44, R51	4	100K	Metal film, 1/4W, ***BRN, BLK, BLK, ORG, BRN***
R20	1	220K	Metal film, 1/4W, ***RED, RED, BLK, ORG, BRN***
R16, R29	2	470K	Metal film, 1/4W, ***YLW, VIO, BLK, ORG, BRN***
R8	1	510K	Metal film, 1/4W, ***GRN, BRN, BLK, ORG, BRN***
R15	1	2M2	Metal or carbon film, 1/4W, ***RED, RED, YLW*** or ***GRN…***
R31	1	LED current limiter	33K for high intensity clear LED, or as per requirement
L1	1	6800µ / 0.0068H	Axial inductor/choke (install standing upright) Alternative: 22Ω resistor
		Diodes	
D3, D4, D5, D8, D9	5	1N4148	Alternative: 1N914, 1N4001, 1N4004, 1N4007
D10	1	1N5819	
D6, D7	2	Germanium	Alternative: schottky 1N5819, or jumper wire
D2	1	3mm LED	(part number not marked on board)
		Capacitors	
C3, C10, C14	3	100p	*101*, Ceramic, 5.08mm pitch
C33	1	470p	*471*, Ceramic, 5.08mm pitch
C4	1	100n / 0.1µ	*104*, Ceramic, 5.08mm pitch
C13, C16	2	1n / 0.001µ	*102*, Polyester film (greencap), 3.5mm pitch
C26	1	4n7 / 0.0047µ	*472*, Polyester film (greencap), 4mm pitch
C27	1	6n8 / 0.0068µ	*682*, Polyester film (greencap), 4mm pitch
C7, C22	2	22n / 0.022µ	*223*, Polyester film greencap or box MKT, 5mm pitch
C8	1	39n / 0.039µ	*393*, Polyester film greencap or box MKT, 5mm pitch
C1, C6, C9, C11	4	47n / 0.047µ	*473*, Polyester film greencap or box MKT, 5mm pitch
C30	1	68n / 0.068µ	*683*, Polyester film greencap or box MKT, 5mm pitch
C28, C29	2	100n / 0.1µ	*104*, Polyester film greencap or box MKT, 5mm pitch
C12, C15, C34	3	1µ	*105*, CBB polypropylene or film MKT, 5.0/5.08mm pitch
C35	1	1µ5	Electrolytic, 16V minimum, 5mm width. 2mm pitch
C31	1	10µ	Electrolytic, 16V minimum, 5mm width. 2mm pitch
C2, C5, C25	3	220µ	Electrolytic, 16V minimum, 6.3mm width. 3.5mm pitch
		Semiconductors	
Q1, Q6	2	2N5088	NPN transistor
Q2	1	2N5087	PNP transistor
Q7	1	(optional) Germanium	PNP Transistor installed in 3-way screw terminal block as socket, 3.5mm spacing. Or solder directly.
IC1, IC2, IC3	3	NJM4580L	
		Potentiometers (do not solder to PCB until all potentiometers and switches are tightly assembled in the enclosure)	
HIGH, LOW	2	5KB	Single gang, linear, 16mm
LEVEL	1	10KA	Single gang, log, 16mm
DIST	1	100KA	Dual gang, log, 16mm
		Switches (do not solder to PCB until all potentiometers and switches are tightly assembled in the enclosure)	
BYPASS	1	3PDT foot switch	Latching type, off-board
FOCUS	1	DPDT toggle, ON-OFF-ON	Alternative: put in two jumper link wires to not use switch
SI/GE	1	DPDT toggle, ON-ON	Alternative: put in two jumper link wires to not use switch

Further notes:

- When drilling enclosures by hand, there will *always* be some margin of error in alignment, at least due to drill bit drift. I suggest to over-drill the toggle switch holes slightly to 7mm. They will naturally find their correct centred position as you slowly tighten the nut, thereby avoiding alignment stress between the PCB pads and switch terminals. **It is important not to solder any hardware to the board until all of the hardware is mounted in its final position**, with nuts fully tightened.

- This layout was designed for the Hammond 1590BS enclosure, with two Switchcraft #11 (or similar) open frame mono sockets. The circuit board will fit snug, with barely any gap between the enclosure wall. A compatible drill layout is also available for 1590N1 / 125B enclosures, which have more space. Most home printers *do not* print accurately to scale. Test all printed drill layouts against a ruler, and adjust the scale as required.

- Most small signal type diodes will work for the germanium and silicon clipping diodes (D3, D4, D5, D6, D7, D8, D9). Extra space is given for larger old-stock devices.

- Be careful to trim all component legs very short near the dual pot, so that they don't short-circuit against the pot body. Make sure that the toggle switches hold the PCB far enough away from the pot to avoid shorting out, or otherwise use insulation on the dual pot.

- The classic model used 10KG pots for the *LOW* and *HIGH* EQ controls. The range of these controls has been reduced, and common type 5KB pots have been used. To use 10K pots, replace resistors R3, R9, and R14 with 0Ω resistors, or jumper links.

- The *SI/GE* mod switch can be removed. The stock silicon mode works great, anyway. For the stock setting, connect jumper links from both the left switch pads to the middle pads. Q7 and the socket are then not required.

- The *FOCUS* mod switch can similarly be removed. For a stock setting, connect jumper links from both the left switch pads to the middle pads. R32 and C8 are then (optionally) not required.

- Q2/Q7 are the main clipping transistors for the fuzz element of the circuit. This stage is well supported by prior transistors Q1, Q6, acting as buffer and volume boost, and is followed by a soft-clipping op amp compression stage. This controlled environment gives lots of room for experimentation of PNP type transistors. I used a low-leakage germanium transistor for Q7 in testing, arising around 90-118hFE.

- An additional nut is optionally suggested to be installed on every potentiometer, as a spacer on the inside of the enclosure. This moves the pots closer to the circuit board, and pushes the legs a little deeper into the pads. In that instance, the pot washer may not be used if there is not much thread left. Most knobs will then sit lower, very close to the enclosure.

- The high parts count and parts density adds to the difficulty of this build, and is only recommended for experienced builders. Care is particularly required when soldering the hardware, to not melt neighbouring parts. Otherwise, there's nothing particularly tricky about the circuit, and it performs consistently using parts which aren't difficult to source (except for the germanium transistor, which can be experimented with at any time).

- If you don't have access to PCB-mount pots, that's okay. Component leads can be soldered to pots as long, flexible legs.

- C3, C10, C14, C33 can be upgraded to axial polystyrene capacitors, installed standing upright.

Debugging

I will do my best to answer any technical questions about the circuit, even small ones. Unfortunately however, I don't have the resources to help you to debug any circuits which are not working correctly, as this will almost always be a soldering or assembly fault. General debugging support is best found online through DIY building groups.

Feedback

Any feedback or suggestions are always welcomed and may help contribute to future updates. My technical knowledge is limited, and I am happy to crowd-source as much free information as I can. Please consider that these documents may be revised at any time, so it is better to share a link, rather than the actual file.

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